Technical Review Comments
Identification of Candidate Technologies and Development and Screening of Remedial Alternatives Memorandum
Pierson's Creek Superfund Site, Operable Unit 2
Troy Chemical Newark Manufacturing Plant
August 20, 2019

CDM Smith has completed review of subject memorandum dated July 31, 2019, prepared by Geosyntec Consultants for Troy Chemical Corporation, Inc. The memorandum identifies preliminary Remedial Action Objectives (RAOs), compiles location- and action-specific Applicable and Relevant and Appropriate Requirements (ARARs) and to-be-considered (TBC) criteria, identifies and screens remedial technologies, and develops and screens remedial alternatives for the contaminated soil onsite. The groundwater medium was not addressed in this memorandum, but will be addressed after the completion of the remedial investigation and risk assessment for Operable Unit 2 (OU2).

General and specific comments are provided below.

General Comments

1. The subject memorandum identifies preliminary RAOs, identifies location- and action-specific ARARs, identifies and screens remedial technologies, and develops and screens remedial alternatives. Since Preliminary Remediation Goals (PRGs) have not been established, the specific locations, areas, and volumes of contaminated soil cannot be determined. The screening and elimination of remedial alternatives are based on incomplete information including incomplete data evaluation and risk assessments. As a result, it is premature to eliminate remedial alternatives at this stage of the RI/FS. Remedial alternatives should not be screened out at this time.

2. All potential exposure pathways and risks such as inhalation of mercury vapor and volatile organic compounds (VOCs) have not been identified. As such, no technologies or remedies have been proposed to address the potential risks associated with the inhalation exposure pathway. Please note that asphalt or soil cover may not be sufficient to address inhalation risks from mercury and VOC vapors, as these vapors can permeate through these covers. Inhalation risks may be greatest during in situ treatment or construction of the covers.

3. The memorandum has not identified all potential treatment technologies for mercury. Other technologies such as the use of sulfite compounds to immobilize mercury should be considered.

Specific Comments

1. Page 6, Section 1.6, second bullet: Clarify what the term "Land Ban" is referring to. Is the term referring to Land Disposal Restrictions (LDRs) under RCRA? If so, revised the text accordingly.

2. Page 7, Section 2.2, bulleted items: Delete the phrase "to the extent practicable" from the first and second bullets. Also delete the phrase "pathways, if any," from the second bullet.

3. Page 7, Section 2.2, third bullet: The third bullet should not be a separate RAO. The first portion of the sentence (before the first comma) should be considered in the implementability evaluation during detailed evaluation of the remedial alternatives. The second part of the sentence (remainder of the sentence) should be detailed considerations of bullets 1 and 2 during the design phase. Please note that the existing pavement and asphalt covers may not be protective of human health due to mercury and VOC vapors.

4. Page 8, Section 3.1 – The sentence "No chemical-specific ARARs were identified for OU2" is incorrect. There are many federal and state chemical-specific ARARs that need to be identified for the protection of human health and the environment. Examples of Chemical-specific ARARs include: EPA Regional Screening Levels for Soil, Toxic Substances Control Act (TSCA - 40 CFR Part 761.61) for PCBs, EPA Directive "Updated Scientific Considerations for Lead in Soil Cleanup" (EPA OLEM Directive 9200.2-167), NJDEP Residential Direct Contact and Nonresidential Direct Contact Soil Remediation Standards, NJDEP Guidance Document for Development of Impact to Groundwater Soil Remediation Standards, etc. These ARARs shall be used to set PRGs. Revise the memorandum to include applicable chemical-specific ARARs.

5. Page 10, Section 5.1:
   a. First set of bullets: The items within the bullets are all part of the three evaluation criteria (effectiveness, implementability, and cost) and should be included under the appropriate evaluation criteria.

   b. Cost bullet: Cost should be evaluated relative to other technologies within the same General Response Action. For example, asphalt cover cost should only be compared to other types of covers (e.g., concrete cover), but not to other types of technologies such as treatment technologies.

6. Page 10, Section 5.2: As noted in general comment 3, other technologies for treatment of mercury vapor and contaminated soil should be included.

7. Page 12, Section 6.2 – Update the list of alternatives based on considerations of other treatment technologies for mercury vapor and contaminated soil.

8. Pages 14 to 15, Section 7.2: The remedy rating system in Section 7 should not be used. Each criterion should not be given equal weight, as some criteria (such as protection of human health and prevention of contaminant migration) are more important than the others (such as duration of operations). The approach of giving equal weight to all screening criteria tends to skew the screening towards retaining containment approaches such as capping rather than treatment alternatives. Additionally, cost should not be used to screen out alternatives at this stage.

9. Pages 16 to 18, Section 7.3, 7.44, and 7.5: The screening of remedial alternatives should be targeted to specific site areas. Remedial alternatives for the concrete ditch and culvert should be separate from those developed for remainder of the site since the concrete ditch and culvert have completely different physical characteristics and will require a different remedial approach than the rest of the site. Different sets of alternatives should be developed for the concrete ditch and culvert and the rest of the site in order to provide appropriate remedies for each of those areas. It is premature to screen out any alternatives at this early stage without a full evaluation of the RI data and risk assessments.

10. Page 19, Section 8: The numerical rating system proposed in Section 8 should not be used. Evaluation criteria should not have equal weight (the evaluation criteria are divided into threshold criteria, which must be complied with, and balancing criteria). Such numerical rating systems, which give equal weight to alternatives, tend to result in non-treatment alternatives, limiting the range of alternatives available to select the most effective remedy.

11. Table 3-2: This table should be more specific regarding Land Disposal Restrictions (LDRs) and Universal Treatment Standards (UTSs) for the site contaminants.

12. Table 5-1:
    a. See general comment 3 regarding additional treatment technologies for the mercury vapor and contaminated soil using sulfite compounds.

    b. The criteria used to evaluate technologies seems to be inconsistently applied. For example, in situ chemical oxidation (ISCO) was retained for the treatment of VOCs, even though ISCO cannot treat polychlorinated biphenyls (PCBs) and mercury. However, soil vapor extraction and bioremediation were screened out because these technologies cannot treat PCBs and mercury. Additionally, high temperature thermal desorption was deemed “infeasible” as discussed in Section 1.4.4 on Page 5 but was retained in Table 5-1. Review and revise the table to address the apparent inconsistent application of evaluation criteria.

    c. The table is unclear as it tries to evaluate technologies for specific areas (e.g., concrete ditch and culvert) and/or the entire site. The table will be clearer and would provide better screening results if the technology evaluation is performed separately for each specific area or type of waste (also see specific comment 9).

13. Table 6-1: As indicated in general comment 3 and specific comment 6, the alternatives should include treatment of mercury contaminated soil and vapor.

14. Table 7-1: See specific comment 8 regarding the evaluation of alternatives using a numerical rating system. Also, see general comment 1. Alternatives should not be screened out at this early stage of the process.